

WO 00/18922

SEQUENCE LISTING

<110> INCYTE PHARMACEUTICALS, INC.
AU-YOUNG, Janice
LAL, Preeti
BANDMAN, Olga
REDDY, Roopa
BAUGHN, Mariah R.
YUE, Henry
HILLMAN, Jennifer L.

<120> HUMAN CARBOHYDRATE-ASSOCIATED PROTEINS

<130> PF-0604 PCT

<140> To Be Assigned
<141> Herewith

<150> 09/164,785; unassigned; 09/167,179; unassigned; 09/191,838;
unassigned;09/205,656; unassigned
<151> 1998-10-01; 1998-10-01; 1998-10-06;1998-10-06; 1998-11-13;
1998-11-13; 1998-12-03; 1998-12-03

<160> 20

<170> FastSEQ 3.0

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<212> PRT
<213> Homo sapiens

<220>
<221> misc_feature
<223> Incyte ID NO: 714029CD1

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Asp Gly His Leu Asn Asn Ser Leu Ser Ser Pro Val Gln Ala Asp
20 25 30
Val Tyr Phe Pro Arg Leu Ile Val Pro Phe Cys Gly His Ile Lys
35 40 45
Gly Gly Met Arg Pro Gly Lys Lys Val Leu Val Met Gly Ile Val
50 55 60
Asp Leu Asn Pro Glu Ser Phe Ala Ile Ser Leu Thr Cys Gly Asp
65 70 75
Ser Glu Asp Pro Pro Ala Asp Val Ala Ile Glu Leu Lys Ala Val
80 85 90
Phe Thr Asp Arg Gln Leu Leu Arg Asn Ser Cys Ile Ser Gly Glu
95 100 105
Arg Gly Glu Glu Gln Ser Ala Ile Pro Tyr Phe Pro Phe Ile Pro
110 115 120
Asp Gln Pro Phe Arg Val Glu Ile Leu Cys Glu His Pro Arg Phe
125 130 135
Arg Val Phe Val Asp Gly His Gln Leu Phe Asp Phe Tyr His Arg

	140		145		150
Ile Gln Thr Leu Ser Ala Ile Asp Thr		Ile Lys Ile Asn Gly Asp			
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Leu Gln Ile Thr Lys Leu					
	170				

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<211> 666

<212> PRT

<213> Homo sapiens

<220>

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<223> Incyte ID NO: 1450775CD1

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	20	25 30
Pro Pro Ala Ala Pro Ala Pro Gly Glu Asp Asn Pro Ala Gly Ala		
	35	40 45
Gly Gly Ala Ala Val Ala Gly Ala Ala Gly Gly Ala Arg Arg Phe		
	50	55 60
Leu Cys Gly Val Val Glu Gly Phe Tyr Gly Arg Pro Trp Val Met		
	65	70 75
Glu Gln Arg Lys Glu Leu Phe Arg Arg Leu Gln Lys Trp Glu Leu		
	80	85 90
Asn Thr Tyr Leu Tyr Ala Pro Lys Asp Asp Tyr Lys His Arg Met		
	95	100 105
Phe Trp Arg Glu Met Tyr Ser Val Glu Glu Ala Glu Gln Leu Met		
	110	115 120
Thr Leu Ile Ser Ala Ala Arg Glu Tyr Glu Ile Glu Phe Ile Tyr		
	125	130 135
Ala Ile Ser Pro Gly Leu Asp Ile Thr Phe Ser Asn Pro Lys Glu		
	140	145 150
Val Ser Thr Leu Lys Arg Lys Leu Asp Gln Val Ser Gln Phe Gly		
	155	160 165
Cys Arg Ser Phe Ala Leu Leu Phe Asp Asp Ile Asp His Asn Met		
	170	175 180
Cys Ala Ala Asp Lys Glu Val Phe Ser Ser Phe Ala His Ala Gln		
	185	190 195
Val Ser Ile Thr Asn Glu Ile Tyr Gln Tyr Leu Gly Glu Pro Glu		
	200	205 210
Thr Phe Leu Phe Cys Pro Thr Glu Tyr Cys Gly Thr Phe Cys Tyr		
	215	220 225
Pro Asn Val Ser Gln Ser Pro Tyr Leu Arg Thr Val Gly Glu Lys		
	230	235 240
Leu Leu Pro Gly Ile Glu Val Leu Trp Thr Gly Pro Lys Val Val		
	245	250 255
Ser Lys Glu Ile Pro Val Glu Ser Ile Glu Glu Val Ser Lys Ile		
	260	265 270
Ile Lys Arg Ala Pro Val Ile Trp Asp Asn Ile His Ala Asn Asp		
	275	280 285
Tyr Asp Gln Lys Arg Leu Phe Leu Gly Pro Tyr Lys Gly Arg Ser		
	290	295 300
Thr Glu Leu Ile Pro Arg Leu Lys Gly Val Leu Thr Asn Pro Asn		

305	310	315
Cys Glu Phe Glu Ala Asn Tyr Val Ala	Ile His Thr Leu Ala Thr	
320	325	330
Trp Tyr Lys Ser Asn Met Asn Gly Val	Arg Lys Asp Val Val Met	
335	340	345
Thr Asp Ser Glu Asp Ser Thr Val Ser	Ile Gln Ile Lys Leu Glu	
350	355	360
Asn Glu Gly Ser Asp Glu Asp Ile Glu	Thr Asp Val Leu Tyr Ser	
365	370	375
Pro Gln Met Ala Leu Lys Leu Ala Leu	Thr Glu Trp Leu Gln Glu	
380	385	390
Phe Gly Val Pro His Gln Tyr Ser Ser	Arg Gln Val Ala His Ser	
395	400	405
Gly Ala Lys Ala Ser Val Val Asp Gly	Thr Pro Leu Val Ala Ala	
410	415	420
Pro Ser Leu Asn Ala Thr Thr Val Val	Thr Thr Val Tyr Gln Glu	
425	430	435
Pro Ile Met Ser Gln Gly Ala Ala Leu	Ser Gly Glu Pro Thr Thr	
440	445	450
Leu Thr Lys Glu Glu Glu Lys Lys Gln	Pro Asp Glu Glu Pro Met	
455	460	465
Asp Met Val Val Glu Lys Gln Glu Glu	Thr Asp His Lys Asn Asp	
470	475	480
Asn Gln Ile Leu Ser Glu Ile Val Glu	Ala Lys Met Ala Glu Glu	
485	490	495
Leu Lys Pro Met Asp Thr Asp Lys Glu	Ser Ile Ala Glu Ser Lys	
500	505	510
Ser Pro Glu Met Ser Met Gln Glu Asp	Cys Ile Ser Asp Ile Ala	
515	520	525
Pro Met Gln Thr Asp Glu Gln Thr Asn	Lys Glu Gln Phe Val Pro	
530	535	540
Gly Pro Asn Glu Lys Pro Leu Tyr Thr	Ala Glu Pro Val Thr Leu	
545	550	555
Glu Asp Leu Gln Leu Leu Ala Asp Leu	Phe Tyr Leu Pro Tyr Glu	
560	565	570
His Gly Pro Lys Gly Ala Gln Met Leu	Arg Glu Phe Gln Trp Leu	
575	580	585
Arg Ala Asn Ser Ser Val Val Ser Val	Asn Cys Lys Gly Lys Asp	
590	595	600
Ser Glu Lys Ile Glu Glu Trp Arg Ser	Arg Ala Ala Lys Phe Glu	
605	610	615
Glu Met Cys Gly Leu Val Met Gly Met	Phe Thr Arg Leu Ser Asn	
620	625	630
Cys Ala Asn Arg Thr Ile Leu Tyr Asp	Met Tyr Ser Tyr Val Trp	
635	640	645
Asp Ile Lys Ser Ile Met Ser Met Val	Lys Ser Phe Val Gln Trp	
650	655	660
Leu Ala Phe Ala Ala Asn		
665		

<210> 3

<211> 307

<212> PRT

<213> Homo sapiens

<220>

<221> misc_feature

<223> Incyte ID NO: 3369350CD1

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Leu	Leu	Val	Ala	Gly	Ser	Arg	Leu	Pro	Arg	Ile	Lys	Ser	Gln	Thr	35	40	45	
Ile	Ala	Cys	Arg	Ser	Gly	Pro	Thr	Trp	Trp	Gly	Pro	Gln	Arg	Leu	50	55	60	
Asn	Ser	Gly	Gly	Arg	Trp	Asp	Ser	Glu	Val	Met	Ala	Ser	Thr	Val	65	70	75	
Val	Lys	Tyr	Leu	Ser	Gln	Glu	Glu	Ala	Gln	Ala	Val	Asp	Gln	Glu	80	85	90	
Leu	Phe	Asn	Glu	Tyr	Gln	Phe	Ser	Val	Asp	Gln	Leu	Met	Glu	Leu	95	100	105	
Ala	Gly	Leu	Ser	Cys	Ala	Thr	Ala	Ile	Ala	Lys	Ala	Tyr	Pro	Pro	110	115	120	
Thr	Ser	Met	Ser	Arg	Ser	Pro	Pro	Thr	Val	Leu	Val	Ile	Cys	Gly	125	130	135	
Pro	Gly	Asn	Asn	Gly	Gly	Asp	Gly	Leu	Val	Cys	Ala	Arg	His	Leu	140	145	150	
Lys	Leu	Phe	Gly	Tyr	Glu	Pro	Thr	Ile	Tyr	Tyr	Pro	Lys	Arg	Pro	155	160	165	
Asn	Lys	Pro	Leu	Phe	Thr	Ala	Leu	Val	Thr	Gln	Cys	Gln	Lys	Met	170	175	180	
Asp	Ile	Pro	Phe	Leu	Gly	Glu	Met	Pro	Ala	Glu	Pro	Met	Thr	Ile	185	190	195	
Asp	Glu	Leu	Tyr	Glu	Leu	Val	Val	Asp	Ala	Ile	Phe	Gly	Phe	Ser	200	205	210	
Phe	Lys	Gly	Asp	Val	Arg	Glu	Pro	Phe	His	Ser	Ile	Leu	Ser	Val	215	220	225	
Leu	Lys	Gly	Leu	Thr	Val	Pro	Ile	Ala	Ser	Ile	Asp	Ile	Pro	Ser	230	235	240	
Gly	Trp	Asp	Val	Glu	Lys	Gly	Asn	Ala	Gly	Gly	Ile	Gln	Pro	Asp	245	250	255	
Leu	Leu	Ile	Ser	Leu	Thr	Ala	Pro	Lys	Lys	Ser	Ala	Thr	Gln	Phe	260	265	270	
Thr	Gly	Arg	Tyr	His	Tyr	Leu	Gly	Gly	Arg	Phe	Val	Pro	Pro	Ala	275	280	285	
Leu	Glu	Lys	Lys	Tyr	Gln	Leu	Asn	Leu	Pro	Pro	Tyr	Pro	Asp	Thr	290	295	300	
Glu	Cys	Val	Tyr	Arg	Leu	Gln									305			

<210> 4

<211> 402

<212> PRT

<213> Homo sapiens

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<221> misc_feature

<223> Incyte ID NO: 1648214CD1

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Met Val His Tyr Ile Tyr Gln Arg Phe Arg Val Leu Glu Gln Gly
          35          40          45
Leu Glu Lys Cys Thr Gln Ala Thr Arg Ala Tyr Ile Gln Glu Phe
          50          55          60
Gln Glu Phe Ser Lys Asn Ile Ser Val Met Leu Gly Arg Cys Gln
          65          70          75
Thr Tyr Thr Ser Glu Tyr Lys Ser Ala Val Gly Asn Leu Ala Leu
          80          85          90
Arg Val Glu Arg Ala Gln Arg Glu Ile Asp Tyr Ile Gln Tyr Leu
          95          100          105
Arg Glu Ala Asp Glu Cys Ile Glu Ser Glu Asp Lys Thr Leu Ala
          110          115          120
Glu Met Leu Leu Gln Glu Ala Glu Glu Glu Lys Lys Ile Arg Thr
          125          130          135
Leu Leu Asn Ala Ser Cys Asp Asn Met Leu Met Gly Ile Lys Ser
          140          145          150
Leu Lys Ile Val Lys Lys Met Met Asp Thr His Gly Ser Trp Met
          155          160          165
Lys Asp Ala Val Tyr Asn Ser Pro Lys Val Tyr Leu Leu Ile Gly
          170          175          180
Ser Arg Asn Asn Thr Val Trp Glu Phe Ala Asn Ile Arg Ala Phe
          185          190          195
Met Glu Asp Asn Thr Lys Pro Ala Pro Arg Lys Gln Ile Leu Thr
          200          205          210
Leu Ser Trp Gln Gly Thr Gly Gln Val Ile Tyr Lys Gly Phe Leu
          215          220          225
Phe Phe His Asn Gln Ala Thr Ser Asn Glu Ile Ile Lys Tyr Asn
          230          235          240
Leu Gln Lys Arg Thr Val Glu Asp Arg Met Leu Leu Pro Gly Gly
          245          250          255
Val Gly Arg Ala Leu Val Tyr Gln His Ser Pro Ser Thr Tyr Ile
          260          265          270
Asp Leu Ala Val Asp Glu His Gly Leu Trp Ala Ile His Ser Gly
          275          280          285
Pro Gly Thr His Ser His Leu Val Leu Thr Lys Ile Glu Pro Gly
          290          295          300
Thr Leu Gly Val Glu His Ser Trp Asp Thr Pro Cys Arg Ser Gln
          305          310          315
Asp Ala Glu Ala Ser Phe Leu Leu Cys Gly Val Leu Tyr Val Val
          320          325          330
Tyr Ser Thr Gly Gly Gln Gly Pro His Arg Ile Thr Cys Ile Tyr
          335          340          345
Asp Pro Leu Gly Thr Ile Ser Glu Glu Asp Leu Pro Asn Leu Phe
          350          355          360
Phe Pro Lys Arg Pro Arg Ser His Ser Met Ile His Tyr Asn Pro
          365          370          375
Arg Asp Lys Gln Leu Tyr Ala Trp Asn Glu Gly Asn Gln Ile Thr
          380          385          390
Tyr Lys Leu Gln Thr Lys Arg Lys Leu Pro Leu Lys
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<210> 5
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 <212> PRT
 <213> Homo sapiens

<220>
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 <223> Incyte ID NO: 2743295CD1

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 Ser Ser Ala Leu Pro Gln Pro Ser Thr Ser Asp Pro Ser Ile Ala
 35 40 45
 Asn His Ala Ser Val Gly Pro Thr Leu Gln Thr Thr Ser Val Ser
 50 55 60
 Pro Asp Pro Thr Arg Glu Ser Val Leu Gln Pro Ser Pro Gln Val
 65 70 75
 Pro Ala Thr Thr Val Ala His Thr Ala Thr Gln Gln Pro Ala Ala
 80 85 90
 Pro Ala Pro Pro Ala Val Ser Pro Arg Glu Ala Leu Met Glu Ala
 95 100 105
 Met His Thr Val Pro Val Pro Pro Thr Thr Val Arg Thr Asp Ser
 110 115 120
 Leu Gly Lys Asp Ala Pro Ala Gly Trp Gly Thr Thr Pro Ala Ser
 125 130 135
 Pro Thr Leu Ser Pro Glu Glu Glu Asp Asp Ile Arg Asn Val Ile
 140 145 150
 Gly Arg Cys Lys Asp Thr Leu Ser Thr Ile Thr Gly Pro Thr Thr
 155 160 165
 Gln Asn Thr Tyr Gly Arg Asn Glu Gly Ala Trp Met Lys Asp Pro
 170 175 180
 Leu Ala Lys Asp Glu Arg Ile Tyr Val Thr Asn Tyr Tyr Tyr Gly
 185 190 195
 Asn Thr Leu Val Glu Phe Arg Asn Leu Glu Asn Phe Lys Gln Gly
 200 205 210
 Arg Trp Ser Asn Ser Tyr Lys Leu Pro Tyr Ser Trp Ile Gly Thr
 215 220 225
 Gly His Val Val Tyr Asn Gly Ala Phe Tyr Tyr Asn Arg Ala Phe
 230 235 240
 Thr Arg Asn Ile Ile Lys Tyr Asp Leu Lys Gln Arg Tyr Val Ala
 245 250 255
 Ala Trp Ala Met Leu His Asp Val Ala Tyr Glu Glu Ala Thr Pro
 260 265 270
 Trp Arg Trp Gln Gly His Ser Asp Val Asp Phe Ala Val Asp Glu
 275 280 285
 Asn Gly Leu Trp Leu Ile Tyr Pro Ala Leu Asp Asp Glu Gly Phe
 290 295 300
 Ser Gln Glu Val Ile Val Leu Ser Lys Leu Asn Ala Ala Asp Leu
 305 310 315
 Ser Thr Gln Lys Glu Thr Thr Trp Arg Thr Gly Leu Arg Arg Asn
 320 325 330
 Phe Tyr Gly Asn Cys Phe Val Ile Cys Gly Val Leu Tyr Ala Val
 335 340 345
 Asp Ser Tyr Asn Gln Arg Asn Ala Asn Ile Ser Tyr Ala Phe Asp

	350		355		360
Thr His Thr Asn Thr Gln Ile Val Pro Arg Leu Leu Phe Glu Asn					
	365		370		375
Glu Tyr Ser Tyr Thr Thr Gln Ile Asp Tyr Asn Pro Lys Asp Arg					
	380		385		390
Leu Leu Tyr Ala Trp Asp Asn Gly His Gln Val Thr Tyr His Val					
	395		400		405
Ile Phe Ala Tyr					

<210> 6

<211> 271

<212> PRT

<213> Homo sapiens

<220>

<221> misc_feature

<223> Incyte ID NO: 2821011CD1

<400> 6

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Phe Leu Ser Leu Leu Pro Ser Gly His Pro Gln Pro Ala Gly Asp			
	20	25	30
Asp Ala Cys Ser Val Gln Ile Leu Val Pro Gly Leu Lys Gly Asp			
	35	40	45
Ala Gly Glu Lys Gly Asp Lys Gly Ala Pro Gly Arg Pro Gly Arg			
	50	55	60
Val Gly Pro Thr Gly Glu Lys Gly Asp Met Gly Asp Lys Gly Gln			
	65	70	75
Lys Gly Ser Val Gly Arg His Gly Lys Ile Gly Pro Ile Gly Ser			
	80	85	90
Lys Gly Glu Lys Gly Asp Ser Gly Asp Ile Gly Pro Pro Gly Pro			
	95	100	105
Asn Gly Glu Pro Gly Leu Pro Cys Glu Cys Ser Gln Leu Arg Lys			
	110	115	120
Ala Ile Gly Glu Met Asp Asn Gln Val Ser Gln Leu Thr Ser Glu			
	125	130	135
Leu Lys Phe Ile Lys Asn Ala Val Ala Gly Val Arg Glu Thr Glu			
	140	145	150
Ser Lys Ile Tyr Leu Leu Val Lys Glu Glu Lys Arg Tyr Ala Asp			
	155	160	165
Ala Gln Leu Ser Cys Gln Gly Arg Gly Gly Thr Leu Ser Met Pro			
	170	175	180
Lys Asp Glu Ala Ala Asn Gly Leu Met Ala Ala Tyr Leu Ala Gln			
	185	190	195
Ala Gly Leu Ala Arg Val Phe Ile Gly Ile Asn Asp Leu Glu Lys			
	200	205	210
Glu Gly Ala Phe Val Tyr Ser Asp His Ser Pro Met Arg Thr Phe			
	215	220	225
Asn Lys Trp Arg Ser Gly Glu Pro Asn Asn Ala Tyr Asp Glu Glu			
	230	235	240
Asp Cys Val Glu Met Val Ala Ser Gly Gly Trp Asn Asp Val Ala			
	245	250	255
Cys His Thr Thr Met Tyr Phe Met Cys Glu Phe Asp Lys Glu Asn			
	260	265	270
Met			

<210> 7
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<220>
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 20 25 30
 Ser Leu Glu Met Leu Ser Arg Glu Phe Glu Thr Cys Ala Phe Ser
 35 40 45
 Phe Ser Ser Leu Pro Arg Ser Cys Lys Glu Ile Lys Glu Arg Cys
 50 55 60
 His Ser Ala Gly Asp Gly Leu Tyr Phe Leu Arg Thr Lys Asn Gly
 65 70 75
 Val Val Tyr Gln Thr Phe Cys Asp Met Thr Ser Gly Gly Gly Gly
 80 85 90
 Trp Thr Leu Val Ala Ser Val His Glu Asn Asp Met His Gly Lys
 95 100 105
 Cys Thr Val Gly Asp Arg Trp Ser Ser Gln Gln Gly Asn Lys Ala
 110 115 120
 Asp Tyr Pro Glu Gly Asp Gly Asn Trp Ala Asn Tyr Asn Thr Phe
 125 130 135
 Gly Ser Ala Glu Ala Ala Thr Ser Asp Asp Tyr Lys Asn Pro Gly
 140 145 150
 Tyr Tyr Asp Ile Gln Ala Lys Asp Leu Gly Ile Trp His Val Pro
 155 160 165
 Asn Lys Ser Pro Met Gln His Trp Arg Asn Ser Ala Leu Leu Arg
 170 175 180
 Tyr Arg Thr Asn Thr Gly Phe Leu Gln Arg Leu Gly His Asn Leu
 185 190 195
 Phe Gly Ile Tyr Gln Lys Tyr Pro Val Lys Tyr Arg Ser Gly Lys
 200 205 210
 Cys Trp Asn Asp Asn Gly Pro Ala Ile Pro Val Val Tyr Asp Phe
 215 220 225
 Gly Asp Ala Lys Lys Thr Ala Ser Tyr Tyr Ser Pro Tyr Gly Gln
 230 235 240
 Arg Glu Phe Val Ala Gly Phe Val Gln Phe Arg Val Phe Asn Asn
 245 250 255
 Glu Arg Ala Ala Asn Ala Leu Cys Ala Gly Ile Lys Val Thr Gly
 260 265 270
 Cys Asn Thr Glu His His Cys Ile Gly Gly Gly Gly Phe Phe Pro
 275 280 285
 Gln Gly Lys Pro Arg Gln Cys Gly Asp Phe Ser Ala Phe Asp Trp
 290 295 300
 Asp Gly Tyr Gly Thr His Val Lys Ser Ser Cys Ser Arg Glu Ile
 305 310 315
 Thr Glu Ala Ala Val Leu Leu Phe Tyr Arg
 320 325

<210> 8
 <211> 3519
 <212> DNA
 <213> Homo sapiens

<220>
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 ttcaagcggga cgtgtacttc ccacgactga tagttccatt ttgtgggcac attaaagggtg 180
 gcatgagacc aggcaagaag gtgttagtga tgggcatcgt agacctcaac ccagagagct 240
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 tcaaagctgt gttcacagat cggcagctac tcagaaatcc ttgtatatct ggggagaggg 360
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 aaattctttg tgagcaccga cgtttccgag tgtttgtgga tggacaccaa ctttttgatt 480
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gcttccacag gaaagtattc ggggtatgtaa ggtgttattt ctgaccagag ccctagttct 3000
gcaataacca aaaccaagga gtataaataa caatcaggct ctgggggaat agaaagcagg 3060
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acttaataga agtgacttct actttttggg ctattccaga agtattttta aattattatt 3180
taaaattttg aagccccatt tcaaactctg ccgacctag ttcaaagccc cctgagagat 3240
cacttttaga attgaggatt tggtaaaatg gcaagtcatt tcatttgtgt taaaaagaaa 3300
atacccaaaa ggaaggaggg agccctgttt gccttgagat aaacggcctt ggcattttct 3360
ggcattaatg tagaaataat gttcctatga tgacatattt tcaaagaaac actttcttat 3420
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<210> 9

<211> 2351

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<223> Incyte ID NO: 1450775CB1

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<212> DNA

<213> Homo sapiens

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<221> misc_feature

<223> Incyte ID NO: 3369350CB1

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<211> 2235

<212> DNA

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<223> Incyte ID NO: 1648214CB1

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<210> 12

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<212> DNA

<213> Homo sapiens

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<212> DNA

<213> Homo sapiens

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<211> 1142

<212> DNA

<213> Homo sapiens

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<223> Incyte ID NO: 2921920CB1

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1142

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<211> 316

<212> PRT

<213> Homo sapiens

<300>

<308> g2810994

<400> 15

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Leu Ile Val Ile Arg Gly His Val Pro Ser Asp Ala Asp Arg Phe
35        40        45
Gln Val Asp Leu Gln Asn Gly Ser Ser Val Lys Pro Arg Ala Asp
50        55        60
Val Ala Phe His Phe Asn Pro Arg Phe Lys Arg Ala Gly Cys Ile
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Val Cys Asn Thr Leu Ile Asn Glu Lys Trp Gly Arg Glu Glu Ile
80        85        90
Thr Tyr Asp Thr Pro Phe Lys Arg Glu Lys Ser Phe Glu Ile Val
95        100       105
Ile Met Val Leu Lys Asp Lys Phe Gln Val Ala Val Asn Gly Lys
110       115       120
His Thr Leu Leu Tyr Gly His Arg Ile Gly Pro Glu Lys Ile Asp
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Ser	Phe	Ser	Ser	Asp	Leu	Gln	Ser	Thr	Gln	Ala	Ser	Ser	Leu	Glu
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Leu	Thr	Glu	Ile	Val	Arg	Glu	Asn	Val	Pro	Lys	Ser	Gly	Thr	Pro
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Gln	Leu	Ser	Leu	Pro	Phe	Ala	Ala	Arg	Leu	Asn	Thr	Pro	Met	Gly
				185					190					195
Pro	Gly	Arg	Thr	Val	Val	Val	Gln	Gly	Glu	Val	Asn	Ala	Asn	Ala
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Lys	Ser	Phe	Asn	Val	Asp	Leu	Leu	Ala	Gly	Lys	Ser	Lys	Asp	Ile
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Ala	Leu	His	Leu	Asn	Pro	Arg	Leu	Asn	Ile	Lys	Ala	Phe	Val	Arg
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Asn	Ser	Phe	Leu	Gln	Glu	Ser	Trp	Gly	Glu	Glu	Glu	Arg	Asn	Ile
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Thr	Ser	Phe	Pro	Phe	Ser	Pro	Gly	Met	Tyr	Phe	Glu	Met	Ile	Ile
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Tyr	Cys	Asp	Val	Arg	Glu	Phe	Lys	Val	Ala	Val	Asn	Gly	Val	His
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Ser	Leu	Glu	Tyr	Lys	His	Arg	Phe	Lys	Glu	Leu	Ser	Ser	Ile	Asp
				290					295					300
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Trp

<210> 16

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<213> Clostridium perfringens

<300>

<308> g144861

<400> 16

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Gln	Glu	Ile	Ser	Tyr	Ser	Gly	Gly	Glu	Phe	Gln	Ile	Ser	Asp	Glu
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				65					70					75
Arg	Val	Asp	Glu	Val	Leu	Glu	Ala	Ser	Asn	Leu	Glu	Ala	Thr	Val
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Pro	His	Asp	Glu	Ser	Phe	Phe	Asp	Glu	Lys	Met	Asp	Ala	Asn	Ile
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Val	Ser	Val	Lys	Asp	Gly	Val	Ile	Gly	Val	Ile	Ala	Glu	Asp	Thr
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Gln Leu Glu Glu Gly Asn Glu Ile Lys	Asn Phe Arg Ala Asp Asp
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Tyr Ala Glu Val Ala His Arg Gly Phe	Ile Glu Gly Tyr Tyr Gly
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200	205 210
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215	220 225
Pro Tyr His Asn Ser Lys Trp Arg Asp	Leu Tyr Pro Glu Glu Lys
230	235 240
Leu Ser Glu Ile Lys Lys Leu Ala Gln	Met Gly Asn Glu Thr Lys
245	250 255
Asn Arg Tyr Val Tyr Ala Leu His Pro	Phe Met Asn Asn Pro Val
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Lys Ala Lys Phe Thr Gln Leu Leu Glu	Asn Asp Val Arg Gln Phe
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305	310 315
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320	325 330
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Pro Ser Asp Tyr Tyr Gly Asn Gly Ser	Ser Ala Gln Leu Lys Glu
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Arg Ile Trp Gly Glu Val Asp Glu Asn	Phe Ala Asn Asn Phe Met
380	385 390
Asn Asn Ile Ser Thr Glu Gly His Pro	Gly Arg Ala Pro Phe Phe
395	400 405
Trp Ile Asn Trp Pro Cys Ser Asp Asn	Ser Lys Gln His Leu Ile
410	415 420
Met Gly Gly Asn Asp Thr Phe Leu His	Pro Gly Val Asp Pro Ser
425	430 435
Lys Ile Asp Gly Ile Val Leu Asn Pro	Met Gln Gln Ala Glu Ala
440	445 450
Asn Lys Ser Ala Leu Phe Ala Ile Ala	Asp Tyr Ala Trp Asn Ile
455	460 465
Trp Asp Asn Lys Glu Glu Ala Asp Glu	Asn Trp Asn Asp Ser Phe
470	475 480
Lys Tyr Met Asp His Gly Thr Ala Glu	Glu Thr Asn Ser Ser Leu
485	490 495
Ala Leu Arg Glu Ile Ser Lys His Met	Ile Asn Gln Asn Met Asp
500	505 510
Gly Arg Val Arg Pro Leu Gln Glu Ser	Val Glu Leu Ala Pro Lys
515	520 525
Leu Glu Ala Phe Lys Gln Lys Tyr Asp	Ser Gly Ala Ser Ile Lys
530	535 540
Glu Asp Ala Leu Glu Leu Ile Glu Glu	Phe Thr Asn Leu Gln Lys
545	550 555
Ala Ala Glu Tyr Tyr Lys Asn Asn Pro	Gly Asn Glu Arg Thr Arg
560	565 570
Asp Gln Ile Ile Tyr Trp Leu Asn Cys	Trp Glu Asp Thr Met Asp

575	580	585
Ala Ala Ile Gly Tyr Leu Lys Ser Ala	Ile Ala Ile Glu Glu Gly	
590	595	600
Asp Asp Glu Ala Ala Trp Ala Asn Tyr	Ser Glu Ala Gln Ser Ala	
605	610	615
Phe Glu Lys Ser Lys Thr Tyr Gly Phe	His Tyr Val Asp His Thr	
620	625	630
Glu Tyr Ala Glu Val Gly Val Gln His	Ile Val Pro Phe Ile Lys	
635	640	645
Ser Met Gly Gln Asn Leu Ser Val Val	Ile Gly Ser Ile Val Asp	
650	655	660
Pro Asn Arg Ile Ile Ala Thr Tyr Ile	Ser Asn Arg Gln Asp Ala	
665	670	675
Pro Thr Gly Asn Pro Asp Asn Ile Phe	Asp Asn Asn Ala Ser Thr	
680	685	690
Glu Leu Val Tyr Lys Asn Pro Asn Arg	Ile Asp Val Gly Thr Tyr	
695	700	705
Val Gly Val Lys Tyr Ser Asn Pro Ile	Thr Leu Asn Asn Val Glu	
710	715	720
Phe Leu Met Gly Ala Asn Ser Asn Pro	Asn Asp Thr Met Gln Lys	
725	730	735
Ala Lys Ile Gln Tyr Thr Val Asp Gly	Arg Glu Trp Ile Asp Leu	
740	745	750
Glu Glu Gly Val Glu Tyr Thr Met Pro	Gly Ala Ile Lys Val Glu	
755	760	765
Asn Leu Asp Leu Lys Val Arg Gly Val	Arg Leu Ile Ala Thr Glu	
770	775	780
Ala Arg Glu Asn Thr Trp Leu Gly Val	Arg Asp Ile Asn Val Asn	
785	790	795
Lys Lys Glu Asp Ser Asn Ser Gly Val	Glu Phe Asn Pro Ser Leu	
800	805	810
Ile Arg Ser Glu Ser Trp Gln Val Tyr	Glu Gly Asn Glu Ala Asn	
815	820	825
Leu Leu Asp Gly Asp Asp Asn Thr Gly	Val Trp Tyr Lys Thr Leu	
830	835	840
Asn Gly Asp Thr Ser Leu Ala Gly Glu	Phe Ile Gly Leu Asp Leu	
845	850	855
Gly Lys Glu Ile Lys Leu Asp Gly Ile	Arg Phe Val Ile Gly Lys	
860	865	870
Asn Gly Gly Gly Ser Ser Asp Lys Trp	Asn Lys Phe Lys Leu Glu	
875	880	885
Tyr Ser Leu Asp Asn Glu Ser Trp Thr	Thr Ile Lys Glu Tyr Asp	
890	895	900
Lys Thr Gly Ala Pro Ala Gly Lys Asp	Val Ile Glu Glu Ser Phe	
905	910	915
Glu Thr Pro Ile Ser Ala Lys Tyr Ile	Arg Leu Thr Asn Met Glu	
920	925	930
Asn Ile Asn Lys Trp Leu Thr Phe Ser	Glu Phe Ala Ile Val Ser	
935	940	945
Asp Glu Leu Glu Ser Ala Gly Asn Lys	Glu Asn Val Tyr Thr Asn	
950	955	960
Thr Glu Leu Asp Leu Leu Ser Leu Ala	Lys Glu Asp Val Thr Lys	
965	970	975
Leu Ile Pro Ile Asp Asp Leu Ser Leu	Asn His Gly Glu Tyr Ile	
980	985	990
Gly Val Lys Leu Asn Arg Ile Lys Asp	Leu Ser Asn Ile Asn Leu	
995	1000	1005

Glu Ile Ser Asn Asp Thr Gly Leu Lys Leu Gln Ser Ser Met Asn
 1010 1015 1020

Gly Val Glu Trp Thr Glu Ile Thr Asp Lys Asn Thr Leu Glu Asp
 1025 1030 1035

Gly Arg Tyr Val Arg Leu Phe
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<210> 17

<211> 97

<212> PRT

<213> Homo sapiens

<300>

<308> g1247124

<400> 17

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 20 25 30
 Pro Thr Ile Tyr Tyr Pro Lys Arg Pro Asn Lys Pro Leu Phe Thr
 35 40 45
 Ala Leu Val Thr Gln Cys Gln Lys Met Asp Ile Pro Phe Leu Gly
 50 55 60
 Glu Met Pro Ala Glu Pro Met Thr Ile Asp Glu Leu Tyr Glu Leu
 65 70 75
 Val Val Asp Ala Ile Phe Gly Phe Ser Phe Lys Gly Asp Val Arg
 80 85 90
 Glu Pro Phe His Val Pro Ser
 95

<210> 18

<211> 457

<212> PRT

<213> Rattus norvegicus

<300>

<308> g442368

<400> 18

Met Gln Pro Ala Arg Lys Leu Leu Ser Leu Leu Val Leu Leu Val
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 20 25 30
 Ser Trp Gln Val Tyr Ser Ser Ala Gln Asp Ser Glu Gly Arg Cys
 35 40 45
 Ile Cys Thr Val Val Ala Pro Gln Gln Thr Met Cys Ser Arg Asp
 50 55 60
 Ala Arg Thr Lys Gln Leu Arg Gln Leu Leu Glu Lys Val Gln Asn
 65 70 75
 Met Ser Gln Ser Ile Glu Val Leu Asp Arg Arg Thr Gln Arg Asp
 80 85 90
 Leu Gln Tyr Val Glu Lys Met Glu Asn Gln Met Lys Gly Leu Glu

95	100	105
Ser Lys Phe Arg Gln Val Glu Glu Ser	His Lys Gln His Leu Ala	
110	115	120
Arg Gln Phe Lys Ala Ile Lys Ala Lys	Met Asp Glu Leu Arg Pro	
125	130	135
Leu Ile Pro Val Leu Glu Glu Tyr Lys	Ala Asp Ala Lys Leu Val	
140	145	150
Leu Gln Phe Lys Glu Glu Val Gln Asn	Leu Thr Ser Val Leu Asn	
155	160	165
Glu Leu Gln Glu Glu Ile Gly Ala Tyr	Asp Tyr Asp Glu Leu Gln	
170	175	180
Ser Arg Val Ser Asn Leu Glu Glu Arg	Leu Arg Ala Cys Met Gln	
185	190	195
Lys Leu Ala Cys Gly Lys Leu Thr Gly	Ile Ser Asp Pro Val Thr	
200	205	210
Val Lys Thr Ser Gly Ser Arg Phe Gly	Ser Trp Met Thr Asp Pro	
215	220	225
Leu Ala Pro Glu Gly Asp Asn Arg Val	Trp Tyr Met Asp Gly Tyr	
230	235	240
His Asn Asn Arg Phe Val Arg Glu Tyr	Lys Ser Met Val Asp Phe	
245	250	255
Met Asn Thr Asp Asn Phe Thr Ser His	Arg Leu Pro His Pro Trp	
260	265	270
Ser Gly Thr Gly Gln Val Val Tyr Asn	Gly Ser Ile Tyr Phe Asn	
275	280	285
Lys Phe Gln Ser His Ile Ile Ile Arg	Phe Asp Leu Lys Thr Glu	
290	295	300
Thr Ile Leu Lys Thr Arg Ser Leu Asp	Tyr Ala Gly Tyr Asn Asn	
305	310	315
Met Tyr His Tyr Ala Trp Gly Gly His	Ser Asp Ile Asp Leu Met	
320	325	330
Val Asp Glu Asn Gly Leu Trp Ala Val	Tyr Ala Thr Asn Gln Asn	
335	340	345
Ala Gly Asn Ile Val Ile Ser Lys Leu	Asp Pro Val Ser Leu Gln	
350	355	360
Ile Leu Gln Thr Trp Asn Thr Ser Tyr	Pro Lys Arg Ser Ala Gly	
365	370	375
Glu Ala Phe Ile Ile Cys Gly Thr Leu	Tyr Val Thr Asn Gly Tyr	
380	385	390
Ser Gly Gly Thr Lys Val His Tyr Ala	Tyr Gln Thr Asn Ala Ser	
395	400	405
Thr Tyr Glu Tyr Ile Asp Ile Pro Phe	Gln Asn Lys Tyr Ser His	
410	415	420
Ile Ser Met Leu Asp Tyr Asn Pro Lys	Asp Arg Ala Leu Tyr Ala	
425	430	435
Trp Asn Asn Gly His Gln Thr Leu Tyr	Asn Val Thr Leu Phe His	
440	445	450
Val Ile Arg Ser Asp Glu Leu		
455		

<210> 19

<211> 369

<212> PRT

<213> Bos taurus

<300>

<308> g415939

<400> 19

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Met Leu Leu Leu Pro Leu Ser Val Leu Leu Leu Leu Thr Gln Pro
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Trp Arg Ser Leu Gly Ala Glu Met Lys Ile Tyr Ser Gln Lys Thr
20      25      30
Met Ala Asn Ala Cys Thr Leu Val Met Cys Ser Pro Pro Glu Asp
35      40      45
Gly Leu Pro Gly Arg Asp Gly Arg Asp Gly Arg Glu Gly Pro Arg
50      55      60
Gly Glu Lys Gly Asp Pro Gly Ser Pro Gly Pro Ala Gly Arg Ala
65      70      75
Gly Met Pro Gly Pro Ala Gly Pro Ile Gly Leu Lys Gly Asp Asn
80      85      90
Gly Ser Ala Gly Glu Pro Gly Pro Lys Gly Asp Thr Gly Pro Pro
95      100     105
Gly Pro Pro Gly Met Pro Gly Pro Ala Gly Arg Glu Gly Pro Ser
110     115     120
Gly Lys Gln Gly Ser Met Gly Pro Pro Gly Thr Pro Gly Pro Lys
125     130     135
Gly Asp Thr Gly Pro Lys Gly Gly Val Gly Ala Pro Gly Ile Gln
140     145     150
Gly Ser Pro Gly Pro Ala Gly Leu Lys Gly Glu Arg Gly Ala Pro
155     160     165
Gly Glu Pro Gly Ala Pro Gly Arg Ala Gly Ala Pro Gly Pro Ala
170     175     180
Gly Ala Ile Gly Pro Gln Gly Pro Ser Gly Ala Arg Gly Pro Pro
185     190     195
Gly Leu Lys Gly Asp Arg Gly Thr Pro Gly Glu Arg Gly Ala Lys
200     205     210
Gly Glu Ser Gly Leu Ala Glu Val Asn Ala Leu Arg Gln Arg Val
215     220     225
Gly Ile Leu Glu Gly Gln Leu Gln Arg Leu Gln Asn Ala Phe Ser
230     235     240
Gln Tyr Lys Lys Ala Met Leu Phe Pro Asn Gly Arg Ser Val Gly
245     250     255
Glu Lys Ile Phe Lys Thr Val Gly Ser Glu Lys Thr Phe Gln Asp
260     265     270
Ala Gln Gln Ile Cys Thr Gln Ala Gly Gly Gln Leu Pro Ser Pro
275     280     285
Arg Ser Gly Ala Glu Asn Glu Ala Leu Thr Gln Leu Ala Thr Ala
290     295     300
Gln Asn Lys Ala Ala Phe Leu Ser Met Ser Asp Thr Arg Lys Glu
305     310     315
Gly Thr Phe Ile Tyr Pro Thr Gly Glu Pro Leu Val Tyr Ser Asn
320     325     330
Trp Ala Pro Gln Glu Pro Asn Asn Asp Gly Gly Ser Glu Asn Cys
335     340     345
Val Glu Ile Phe Pro Asn Gly Lys Trp Asn Asp Lys Val Cys Gly
350     355     360
Glu Gln Arg Leu Val Ile Cys Glu Phe
365

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 <211> 313
 <212> PRT
 <213> Mus musculus

<300>
 <308> g3357909

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 20 25 30
 Asn Ser Phe Phe Ser Ser Leu Pro Arg Ser Cys Lys Glu Ile Lys
 35 40 45
 Gln Glu His Thr Lys Ala Gln Asp Gly Leu Tyr Phe Leu Arg Thr
 50 55 60
 Lys Asn Gly Val Ile Tyr Gln Thr Phe Cys Asp Met Thr Thr Ala
 65 70 75
 Gly Gly Gly Trp Thr Leu Val Ala Ser Val His Glu Asn Asn Met
 80 85 90
 Arg Gly Lys Cys Thr Val Gly Asp Arg Trp Ser Ser Gln Gln Gly
 95 100 105
 Asn Arg Ala Asp Tyr Pro Glu Gly Asp Gly Asn Trp Ala Asn Tyr
 110 115 120
 Asn Thr Phe Gly Ser Ala Glu Ala Ala Thr Ser Asp Asp Tyr Lys
 125 130 135
 Asn Pro Gly Tyr Phe Asp Ile Gln Ala Glu Asn Leu Gly Ile Trp
 140 145 150
 His Val Pro Asn Lys Ser Pro Leu His Asn Trp Arg Lys Ser Ser
 155 160 165
 Leu Leu Arg Tyr Arg Thr Phe Thr Gly Phe Leu Gln His Leu Gly
 170 175 180
 His Asn Leu Phe Gly Leu Tyr Lys Lys Tyr Pro Val Lys Tyr Gly
 185 190 195
 Glu Gly Lys Cys Trp Thr Asp Asn Gly Pro Ala Leu Pro Val Val
 200 205 210
 Tyr Asp Phe Gly Asp Ala Arg Lys Thr Ala Ser Tyr Tyr Ser Pro
 215 220 225
 Ser Gly Gln Arg Glu Phe Thr Ala Gly Tyr Val Gln Phe Arg Val
 230 235 240
 Phe Asn Asn Glu Arg Ala Ala Ser Ala Leu Cys Ala Gly Val Arg
 245 250 255
 Val Thr Gly Cys Asn Thr Glu His His Cys Ile Gly Gly Gly Gly
 260 265 270
 Phe Phe Pro Glu Gly Asn Pro Val Gln Cys Gly Asp Phe Ala Ser
 275 280 285
 Phe Asp Trp Asp Gly Tyr Gly Thr His Asn Gly Tyr Ser Ser Ser
 290 295 300
 Arg Lys Ile Thr Glu Ala Ala Val Leu Leu Phe Tyr Arg
 305 310